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WITH TOM TOKE, THE AUSTRALIAN BUSHRANGER.

I WAS staying at Melbourne in December 1858, after a long overland journey from South Australia, when business summoned me to visit the Omeo Gold-field, situated at the extreme eastern end of the colony of Victoria, in the neighbourhood of the Australian Alps. The intervening country as far as the border of New South Wales was in the hands of squatters, and frequented in several parts by notorious bushrangers. Two routes lay open to my choice: one direct from Melbourne by land, the other by sea to Port Albert—now called Albertston—and thence through Gipps Land and across the Fainting Ranges. I selected the latter. So about the end of December, I and my brown cob Tommy embarked on board the *Shandon* steamer, bound for Port Albert. My encumbrances consisted of a saddle valise containing a change of linen, a revolver and a heavy-headed hunting-whip completing my equipment.

I passed through Gipps Land by easy stages, and reached the scene of the story of Kingsley's *Geoffrey Hamlyn*, when I was unpleasantly reminded of the dangers of the Bush. The district was in a state of excitement consequent upon the murder of a Mr Green, a well-known gold-buyer, who was returning from Omeo accompanied by a gentleman and lady. They had gone only a mile or two from Omeo, when they were fired at from a clump of trees near the track. Green was struck, and fell to the ground; his male companion was untouched, and carried out of danger by his frightened horse; but the lady was thrown from her saddle and broke her arm. While Green lay on the ground, one of the murderers rushed up and despatched the hapless victim with a tomahawk. For some reason or other, the lady was left unmolested, and finally returned to Omeo. It was therefore in no cheerful mood that I pushed my way across the dreary Fainting Ranges.

In due time I reached Omeo without meeting with any of the murderous gang. As I rode

down its one straggling street, I saw an excited crowd gathered about a building, which turned out to be the court-house. On inquiry, I was informed that three men were being examined on the charge of murdering Mr Green. 'Well,' thought I, 'this explains my lucky escape from a probably similar fate.' I soon learned that the accused were notorious characters in that neighbourhood, and were known under the names of Toke, Armstrong, and Chamberlain. Toke, or Tom Toke as he was commonly called, succeeded in proving an alibi; but the other two were committed for trial to Melbourne, where they were afterwards convicted, and hanged.

I was detained at Omeo about a week, much against my will. The place contained only about four or five hundred people, chiefly men, and it seemed to be the refuge of shady characters who had found the lower country too hot to hold them. Indeed, at that time it was spoken of as a kind of Alsatia, to which the 'wanted' people made tracks. During my stay, the Green murder and Tom Toke's connection with it were frequently discussed. It was the second appearance of that 'worthy' in court on the charge of murder in that week. As I was soon to come in contact with him, the story of my adventures in his company will be better understood by some account of this crime, as it was afterwards made clear by the revelations of Armstrong and Chamberlain, and the confession of Toke himself before his death.

A few weeks before my arrival at Omeo, a newcomer in the person of a digger had made his appearance on the creek. He was soon known as Ballarat Harry. He seemed to have been lucky in other fields, for he brought with him three or four horses, lots of store-clothes, quantities of jewellery, and some valuable gold nuggets. He became a great favourite with the publicans of the township, because he was no niggard in standing treat. Among the numerous friends that he made in this way were Messrs Toke and Armstrong, who became particularly attached to him. One day Toke met Armstrong, and said: 'I

can put you on a good lay. Ballarat Harry would pay for melting. What do you say if we try it? I will propose to him to join us in prospecting. He'll go like a shot, I know; and then when we have got him away, we can easily do for him, and get his plunder.'

Armstrong readily consented; but somehow or other failed to be at the rendezvous.

Toke and his victim departed together one morning with the good wishes of their acquaintances, for no secret was made of the prospecting expedition. After a few weeks' absence, Toke returned alone to the township. In answer to inquiries about his companion, he said: 'They hadn't struck anything, and they had both got tired of prospecting; so they parted, and Harry had gone down country again.' To his fellow-conspirator Armstrong, however, he confessed he had murdered Harry in the Bush, and to prevent detection, had burned the body. Toke was suspected of foul-play, and was brought up before the magistrate; but as Harry's body could not be found, the case was discharged for want of evidence.

Before I left, I dined with Mr Wills the magistrate, who told me that Toke was a Tasmanian convict, and that he had no doubt whatever about the latter's guilt of Ballarat Harry's murder, though he was obliged to discharge him. Years afterwards, when Mr Toke finished his career on the scaffold, he confessed to sixteen murders, and to Harry's among the number, and described the spot where that crime was committed. Some charred bones and buttons found at the place indicated, proved the convict's story.

After finishing my business at Omeo, instead of returning direct to Melbourne, I resolved to rejoin my friends at Beechworth, which place lay on the north-western side of the Australian Alps in the direction of Mount Gibbo. This range I should have to cross from Omeo. I mentioned my purpose to Mr Wills, who at once threw cold-water upon it. He had tried it himself unsuccessfully three or four times, he said. In winter, it was dangerous from the snow; in summer, still more so, on account of the floods in the rivers and creeks from the melted snow. Several persons, to his knowledge, had lost their lives in the attempt, either by accident or bush-rangers. Strange to say, all those facts, though confirmed by other persons, only made me more obstinate in my purpose. Seeing I was bent upon the expedition, Mr Wills then told me all he knew about the country.

'The greatest danger,' he said, 'was the crossing of the Mitta-Mitta River, which flows northward into the Murray. It is sure to be swollen. After passing Mount Gibbo, you must follow this stream for a considerable distance. The only man who knows the country is that rascal Toke, for I am convinced he has often sheltered himself in that direction. I am told that he is at present camping out somewhere in Gibbo Creek, on this side of the mountains, about twenty miles off. If you are fool enough to persist in your project, your best plan will be to take Toke as a guide.'

'Well,' I replied, 'after all that you have told me of this fellow's character, I am surprised at your suggestion.'

'But don't you see,' he answered, 'if you make the attempt alone, the chances are ten to one that Toke and his friends will waylay and murder you? Your movements by this time are sure to be known and your purchase of gold also.' (I had bought about two pounds-weight of the precious metal.) 'Now, Toke knows that he is under the surveillance of the police; and perhaps a letter from me will induce him to guide you across the Mitta-Mitta, if you offered him a few sovereigns for his trouble.'

I decided to follow this advice. But when I bade 'good-bye' to the hotel-keeper, he shook his head and said he feared I should never reach Beechworth alive. So, mounting my horse, and armed with the letter of the magistrate, I started for Gibbo Creek. The sun had set and darkness was coming on apace when I reached the creek. Crossing this, I came upon a narrow strip of level scrubby ground at the base of the mountain. 'Now,' thought I, 'which way shall I turn to look for friend Toke? Right or left? I'll toss up for it. Heads, left; tails, to the right.' Tails won; so I started off to the right, letting my horse pick its way through the scrub. Fortunately, the darkness which had come on was paling a little before the rising moon, which enabled me to keep at the base of the mountain. After going about a couple of miles, I saw a light, and made straight for it, 'coo-eeing'* as I advanced. When I drew near, I saw a little hut or *mia-mia* made of bushes, with a fire in front of it, and near the fire a man standing with a revolver, pointed towards me. 'This is Tom Toke,' thought I. But my thinking was abruptly startled by the rough salute: 'Who are you? Come another yard, and I'll blow your brains out!'

This reception, which was accompanied by a liberal comminglement of oaths, was not very pleasant or very hospitable; but my nerves were good, and I was prepared for roughing it. 'Tom, old man,' I said, 'put that thing down; it might go off.'

'Who said my name was Tom?'

'I do, old boy—Tom Toke; and I want to have a yarn with you.'

'No yarns for me! Hook it, or you'll have a bullet in sooner than you think for, flash un.'

'I sha'n't, until I have had a pannikin of tea. So fire away, only don't hit me.'

The moon by this time enabled us to see each other's movements clearly. I quietly dismounted, and holding up my hands, said: 'Now, don't be a fool, Tom. You can see I have no shooting-iron; so put that thing down.' Then walking up to him, I said: 'Now look here. If you are not satisfied, you can feel, and you will find I have got no pistol or other arms about me; so drop all this fuss.—By Jove! here's some cold tea;' and without any ceremony, I took up his dirty 'billy,' and putting it to my mouth, drank every drop of it without stopping, for I was terribly dry.

Tom was utterly taken aback. Looking me up and down, while he replaced the revolver in his belt, he said: 'My eyes! if you're not the coolest one I ever seed.'

* Coo-ee, a shout frequently adopted by travellers in the Bush.

Looking into his *mia-mia*, I saw a very dirty-looking blanket. Touching this with my foot, I said: 'I say, Tom, surely you have got some more blankets, because I haven't one; and if that is all you have, why, we shall have to pig it together, for I intend to have half of it.'

This seemed to disarm him completely. 'Well,' he said, 'you *air* a cool un.'

As a sort of finisher, I said: 'Tom, give us a draw, old man; I've lost my pipe on the road.' So I took his pipe, and had a smoke, until he foraged me out a spare one of his own, which, by-the-by, I kept for many years.

Matters were now smooth. After hobbling my horse and removing the saddle and bridle, Tom and I sat down to a supper of damper biscuits and very bad meat.

Unbuckling my valise to get something out, I said to Tom: 'What do you call that for a seat? I have two pounds-weight of dust in that lot.'

He simply remarked 'So.'

I pointed to my saddle and said: 'There's my revolver, Tom; you can take it, if you like, or draw the charges.'

But this he declined to do.

I then told him what I wanted; but I made a bad shot in commencing with an allusion to Mr Wills's letter. It produced a volley of oaths. 'He would neither go for Wills nor any one else, unless he liked.'

I immediately wore ship, tore up the letter, trusted to my own persuasion, and obtained his promise to go with me in the morning.

At length, after smoking and chatting, we settled down for the night, lying side by side on the ground, wrapped up in the one blanket, with our saddles for pillows, and our feet to the fire. I never slept sounder in my life. The morning broke in a dense fog, which continued for two days, and kept us at the creek. The third morning was fine and clear. After breakfast, we packed up and began the ascent of Gibbo, leading our horses. Oh, what a climb that was! and what a descent on the other side! Both men and beasts in danger of breaking their necks. After leaving the mountain, we passed through dense forest, and arrived at the banks of the Mitta-Mitta the same evening, where we encamped for the night. There was a strong flood in the river, which we hoped would abate before morning, as our route lay across it. Next day, we were better able to realise our position. In our way ran a river from forty to fifty yards wide, charged to the full, and hissing again as its waters rushed over reefs and through narrow channels. Its course for the most part lay through gullies and gorges, where the banks were steep and high like solid walls of masonry. Here and there on each side were narrow ledges near the water's edge, where a passage might be made. But on this occasion the prospect of crossing was not cheerful.

'We are going to have a job to get in,' said Toke; 'I have never seen the river so high. There's nothing but swimming for it.'

'I can't swim a stroke,' I said; 'but I have every confidence in my horse.'

Toke led the way into the stream. Our nags were quickly out of their depth, and swam the current in fine style. Safely on the other side,

my handsome cob seemed as pleased as myself, for he rubbed his head on my shoulders in answer to my patting.

The Mitta-Mitta winds so much in its course that we were obliged to cross it five times, and on two occasions we had to leap our horses from the bank into the stream. When we approached the river for the fifth time, Toke said it would be the last, as the country would open out, and we should be able to keep on high ground and follow the course of the river. But alas! our luck now deserted us, or rather the strength of our horses deserted them. Toke again led the way, but my horse soon overtook him. Without a second's warning, I saw Toke swimming in the water at my side and his mare nowhere to be seen. Before I could realise the danger, I too found myself struggling in the water, and carried down stream, bobbing up and down like an empty bottle. I was perfectly conscious; so, when the current drove me breast-on to a rock in mid-stream, I threw my arms across it and held on. The current tore away at my legs, for I was unable to mount the stone, and I was momentarily in danger of being washed off. The minutes seemed hours, and my grip was growing weaker, when rescue came in the shape of my guide, who clutched me by the hair and towed me safely to the bank. Toke had very little to say, but pointed to the other side of the river, and there I saw our horses grazing side by side. Four days and nights in the Bush, with nothing to feed upon but grass, had proved too much for their strength; hence their inability to carry us again across.

After resting awhile, Tom reswam the river, with the intention of bringing the horses across. Twice he attempted the passage with the same result as before. After the last effort, the two beasts laid themselves down on the ground as if thoroughly beaten—an example which Tom himself followed. At length he rose and shouted to me; but so loud was the noise of the rushing river that I could not distinguish a word. I then watched him approach the horses, mount his own, and leading mine, ride off, for assistance as I afterwards learnt, waving his hand to me.

Left alone, I began to consider my position. The sun was now setting, and I was feeling rather faint and chilly. When could I reckon upon Tom's return to my side of the river? I was ill prepared to spend the night there. I had neither coat, hat, pipe, nor matches. My boots and breeches bore manifest traces of the wear and tear of my recent travels; indeed, the soles of the former were giving way altogether. A Crimean shirt over my under-vest, a pocket-handkerchief in my waist-belt, and a penknife in my fob, completed my equipment. 'There is nothing for it,' thought I, 'but to sleep the night out.' So I gathered some scrub-stuff for a bed, and placed a stone for a pillow, and slept soundly till morning. I woke up cold and stiff and hungry. I resolved no longer to remain where I was, but to get up on the high ground, and steer a course from the river which I understood Toke intended to take. Having done this, I found an open park-like country, interspersed with a thick undergrowth of thorny bushes and prickly spear-grass. I pushed on for the day under a blazing hot sun, with my handkerchief and some large leaves

as a protection for my head, and did, I guessed, about twenty miles, seeing nothing but trees and wild birds; not a spring anywhere. Night came on; but so faint was I, that I did not care to collect scrub for a bed. The night's sleep gave me comparative freshness; but when I tried to move in the morning, the stiffness was excessive. My first work was to convert my boots into sandals; for I was much impeded on the previous day by the dilapidated soles. I now altered my course. I thought, if I were to get to any place alive, I must go back to the river and follow its direction. So I retraced my steps, but with slower pace; for, in addition to my weakness, I suffered much pain in my feet and legs from thorn scratches and prickles. Day had passed into night long before I again struck the river, where I lay down for my third night's lonely rest.

Next morning my first care was to bandage the feet with the strongest part of my clothes; for this purpose I tore up my breeches. Come what might, I was determined to move on as long as I could crawl, and I resolved to keep by the river. Words cannot describe my hunger. How eagerly did I examine the bleached bones of birds which I occasionally saw, in the hope of finding some flesh upon them! I did not know so much of Bush-life then as I learned afterwards, or I might have found some roots or grubs to eat, as I have frequently done since. My resolution to keep to the river cost me much pain and labour. Great thorn-bushes frequently barred the way. In getting over or creeping through these, my clothes were torn into rags, and my body from head to foot was scratched and bleeding. My foot-bandages came off early in the day, and I was obliged to take off my under-vest and tear it into pieces to bind my feet, else I should not be able to get on at all. Many a time in the day did I sit down, feeling as if I could not go a step farther; yet, after a little rest, my courage revived, and the pluck of youth returned, for I was scarcely twenty-five years old. 'Oh, this won't do,' I said to myself. 'Never say die; here goes for another shy at it;' and then up I would get and scramble on once more. Perhaps what tried me as much as anything was the mocking of the parrots and cockatoos, of which there were thousands. Sometimes I thought I heard a 'cooe,' which drew from me a faint effort to cooe myself; but my disappointment was most bitter when I found that the replies were the mocking cries of birds. In the afternoon, my feet were perfectly bare, and I had nothing wherewith to cover them. The prickly creepers got between my toes, and my progress was literally snail-like in pace. When I sat down to rest for the fourth night, I felt light-headed and altogether queer.

Soon after daylight next morning, as I lay on the ground, I distinctly heard a cooe, a second, and a third; but for some time I seemed too dazed and stupid to take any notice, or imagined the mocking birds were busy again. At length a louder cooe roused me from stupor. I stood up and cooed faintly in return. Then came a shout: 'Keep on talking, that I may tell where you are.'

In a few moments afterwards, Tom Toke was standing at my side. He immediately gave me some damper, which I tried to eat, but couldn't.

He then lit his pipe and handed it to me. I took a few pulls at it, and felt a wonderful change. I made another attempt at the damper, and contrived to swallow a few mouthfuls. A draught of water, another smoke, and some more damper, and then I felt I was myself again.

Toke, in spite of the gravity of the situation, could not help laughing at me, for I was a wretched object. Excepting the rag of the Crimean shirt, which only partially covered me, and a handkerchief on my head, I was nearly destitute of clothing. Indeed, I could not refrain from joining in the laugh at my miserable appearance. We told each other of our adventures since parting. He said that he had only ridden a short distance when his mare knocked up, and compelled him to camp for the night. Next morning, the two horses were missing, and were not recovered until the afternoon. After that he lost his bearings; but at sunset on the following day he reached an out-station hut occupied by some stock-riders, where he told his tale and passed the night. He asked the men to join him in the search for me, as he was sure that I would turn up, and would certainly pay them for their trouble. They answered, that as there was little chance of finding me alive, and as they had some mustering to do, a day or two would make no difference to me, and then they would help in the search. But Tom would not delay, and started off alone, and so found me.

We now set off in the direction of the stockmen's hut. Tom took off his boots and put them on my feet; but I suffered so much pain that I could scarcely move. Our progress was so slow, that Tom replaced his boots, and carried me on his back. In this way we proceeded for a distance of six or eight miles, of course resting now and again. In the afternoon we arrived at the place where Tom had crossed the river in a bark-canoe, and soon afterwards reached the hut, much to the surprise of the stockmen, and to the evident gratification of my old cob, that whinnied and neighed at the sight of me. I found my valise and contents quite safe, and was speedily supplied with a relay of clothing. I had much difficulty in persuading my faithful guide and saviour to accept anything in the way of payment.

'I don't want money,' he said; 'I have enough planted to last my time; and if not, I can always get more.'

'Well,' I answered, 'take a little to buy something to keep me in remembrance—a pipe or anything of that sort.' In this way I induced him to take five pounds.

Before starting alone for Snowy Creek, I said to Toke: 'Tom, do you know I knew all about you when I met you first?'

'To be sure,' he answered. 'You was told at Omeo, if you didn't know before; and you was a plucked un to come to me as you did.'

'Now, Tom, you will come to grief some day, and it will be a short shrift for you. To me you have acted as a brave and straightforward fellow. I am not rich; but as long as I have anything and you are in want, I will divide with you. There's my address in Melbourne. Whenever you are there, come and see me. Good-bye, old boy.' And so we parted.

Within the next two years, Toke called twice at my place of business in Melbourne during my

absence, and each time left some rare birds' skins for me. Soon afterwards, I settled down in New Zealand. Toke's after-history was made known to me by the newspapers. He received long imprisonments for perjury and horse-stealing, and finally fell into the hangman's hands for murder. Before his execution he confessed to several murders, and so cleared up many Australian mysteries.

ONE FALSE, BOTH FAIR;

OR, A HARD KNOT.

CHAPTER XXI.—THE GENERAL INQUIRY OFFICE.

'MR DRONOVICH within?—No.—Then, thank you, I'd like to have a word with Mr Melville. Here's my card—name of Rollington—Captain Rollington, from abroad. No new name to him, and better known still to your principal; and so, young man, you need not trouble yourself to enunciate any of those hackneyed fibs with which you are preparing to stave me off. Come, come, my lad; I may not be a swell customer, but I am a paying one, rely on it; and it's not wise of you, or likely to please your governor, to try to shut the door, morally, in this sunburnt face of mine. I'm an old hand, and should be free of the place.'

'I beg your pardon, I'm sure, sir. Won't you step up? I'll speak to Mr Melville directly the lady-client who is with him now, comes down,' returned the flurried young clerk, with abject civility, as he got his fat pasty face and gorgeous neckscarf and rattling watch-chain out of the way, to let the newly arrived customer pass by.

This General Inquiry Office—the General Inquiry Office, as it chose to describe itself in the frequent and pompously worded advertisements that kept the world awake to the fact of its existence—was very well housed indeed, occupying handsome premises in a bustling City street. Its promoters—for it was a Company, of Limited Liability, of course, but believed to be of unlimited resources as to cash and brains, that had founded it—had done rightly in pitching their tent within the dominions of the Lord Mayor. City men believe in the City. So, for that matter, do those who have nothing practically to do with that charmed Tom Tiddler's ground where gold and silver are to be picked up. And the Company had done wisely in buying up ex-inspector Dronovich, a detective who had been in the pay of two or three successive governments, so rumour said, and was supposed to know as much about Nihilists as he did about the forgers of Russian rouble notes and the negotiators of stolen diamonds. Second in command at the office was Silas Melville, of New Jersey, U.S., and who had once been Assistant-superintendent of the Chicago police, and at another time instrumental in breaking up the notorious Molly Maguire League. These were the high officials of the place. But under them were subordinates, British and foreign, who did the bulk of the work, of which, unfortunately, there was only too constant a supply. It is so in a rich country and in a complicated society; and indeed the spy is now as recognised an institution, and drives as lucrative a trade in London, Paris, Boston, or New

York, as did once the bravo in medieval Venice or Naples. So many people there are with money to spend and underhand objects to attain, and so many more who are tormented by anxious doubts and fears, that the private inquirer has usually names in plenty on his books.

In all London there was not a human beehive of this sort in which more of golden honey was made than at the General Inquiry Office, of which Paul Peter Dronovich was the ornamental head. It had been well advertised, and was well lodged; but that was not all. It had really done good work; and the sensational newspaper reports of certain attractive trials had done it more good than anything else. So that people with a spite against somebody, and jealous Othellos with the Divorce Court as their goal, and the very large class of legacy-hunters who brood through life over the grievance of being excluded from Uncle Buncle's will, and are sure that there exists a later and valid will, most feloniously kept back by hateful Cousin George or odious Aunt Jane; and the miscellaneous customers who had family or business reasons for desiring to find out something which they shrank from mentioning at Scotland Yard, came to the office, and helped to swell the dividends of its proprietors.

The lady client being disposed of and dismissed, Captain Rollington's card was duly taken into the penetralia where the second in command, the American gentleman, transacted business. 'If you'll walk in, Captain, Mr Melville will see you at once,' said the clerk with grave respect; and the applicant was ushered into a handsomely furnished room, the only occupant of which was a spare active man, with a quantity of black hair, unduly long, and tossed hither and thither with apparent carelessness, as the locks of a poet might be, but still so as to make the most of his high narrow forehead—a man with shifty black eyes, restless lips, and almost transparent nostrils—a man with a black satin waistcoat, redundant jewellery, and the air of being a bundle of nerves, without any flesh or muscle to speak of. Such was Mr Melville; and his voice was very peremptory as he said: 'That will do, Gubbins. Send out the notes I gave you, each by a messenger, and let no one disturb me while this gentleman is here.' Then, as the door closed, the American's manner suddenly changed, and he said, almost cordially: 'Well, Jack—hardly thought to see you here again, mate.' And he held out his hand in Anglo-Saxon style. The visitor grasped it willingly enough.

'You thought, Silas, I daresay,' he replied, in a tone so peculiar that it was impossible even to a practised ear to detect whether its ring were one of bitter mockery or harmless jest, 'that the rolling stone that gathers no moss had rolled off for good and all into limbo. No; not quite yet, though I have shaved it very closely, I can tell you, since last we two met. Been as near missing the number of my mess, twice, anyhow, as ever since first I set out on the grand tour that, with a vagabond like me, lasts for ever.'

'Wouldn't be Chinese Jack, else,' answered smiling Mr Melville, smiling, that is to say as to his lips, but unsmiling with regard to those shifty eyes of his. 'You were thought as sure to die in your boots—to go up the flume, as

the saying was—as any of our boys at Golden Gulch; but somehow,' he added, with somewhat of genuine admiration in his tone and look, 'you seemed to bear a charmed life. Six-shooters and bowies did disagree with a good many of our mining acquaintance, they did; and ten-rod whisky, Regulators, Red Indians, and Road-agents, levied toll on the rest; but you seemed to slip out of a scrape as an eel slides through the fingers.'

'I suppose,' returned the other, half carelessly, 'there was a sweet little cherub, as the sailor's song says, to keep watch over the life of poor Jack.—Now to business. You are doing pretty well here, eh?'

'Coining money,' responded the American, rubbing his bony hands together with a chuckle as he spoke. 'It's a good trade and a good time.—Well, Jack, on what footing are we to deal? Are you to be the paymaster, or are we? If it is employment that you seek'—

'But I don't,' interrupted the visitor—'not at present, that is.'

'So I guessed,' drily retorted the private inquirer, glancing at the glossy cloth of his old friend's new coat. 'Well, then, Jack, or Captain Rollington, what can we do for you? It was Cook, by-the-by, that you hailed as, wasn't it? at Golden Gulch, as a short and easy name, perhaps, suitable to the short memories and rough tempers of Californian diggers. But I remember the longer patronymic well enough in after-years, when we were both'—

'Drummers to a Philadelphia dry-goods store; and later on, bonnets at a Baltimore gambling-house,' chimed in Chinese Jack, seeing that the other hesitated to conclude his sentence. 'Yes; we have followed as many callings as most men, even in the States, in our time, I calculate. You didn't notice me, Silas, when I made one of your congregation in that chapel you had at Great Oil Springs; and I am bound to say you preached us a capital sermon. And when you drove the mail from Troy to Silver City, Nevada, and'—

'Hush!' broke in the American, looking anxiously around him, as if he were afraid that the revelations of his indiscreet visitor might reach other ears than his. 'We had better, like sensible men, let bygones be bygones, and stick to the present. You, too, old chum, have been other guess-things than you have enumerated here; and I, too, might descant on what I have heard concerning you, O man of many names! But a truce to this word-fencing. Dog does not eat dog, so the proverb says; and I have heard my Scottish grandsire declare, among our New Jersey melon-beds, that hawks would not pike out other hawks' een. If you wanted work, partner, as we were once, at Spanish, not Golden Gulch'—

'Ay, where I drew you up, hand-over-hand, by the lasso, after the Mexican rowdies had robbed you, and left you to die of thirst and hunger at the bottom of the hole. Yes; and where Red Eagle, the Apache chief, had his knee well planted on your chest—a big strong knee it was—and the scalping-knife circling already about that helpless head of yours. You were good grit, I own; and the blood was trickling down from the two knife-wounds beneath the bear-claw

collar that the Red beggar was so proud of—won as it was from four grizzlies killed in hard fight. I spoilt his fun, didn't I? though it cost me a tussle, and sharp play with the knife and tomahawk. He was a man, Red Eagle was. Do you remember, Silas, that it was not until we two were breathless, torn, and bloody, with the wrestle and the rolling that never seemed to end, that my wrist proved the strongest? But it was a fight to remember. And the Apache behaved like a gentleman, as he was indeed, once I'd mastered his tomahawk, in waiting for me to brain him in the regular way. Yes; it was a pretty fight, and I don't suspect you were ever nearer to having no hair on your head, my friend.

—Well, old chum, I don't expect gratitude. That quality is as dead as trust is, according to bar-keepers and suspicious landlords. But we may be good friends in a workaday sense, may we not? I have come here, because yours is a smart shop—I beg pardon—a smart store, for secret intelligence, and because I want something, and know something of yourself and Dronovich. You should work cheap for an old mate like me.'

'Something due, surely, for that little muss at Spanish Gulch,' put in the smiling private inquirer with the unsmiling eyes.

'Nothing so cold as a back-scent, and nothing so thankless, as I learned, out with the hounds, as soon as I was big enough to stick to the saddle of my pony,' rejoined Chinese Jack. 'No, no; all I meant to ask was a dollar's worth for my dollar. You were glad of me, that time, when I came back from the Diamond Fields at the Cape—Cape of Bad Hope it was to me—with those yellow pebbles, bought by such work as never was done in parching days at Detroit's Pan, and found the sparklers laminated rubbish, all flaws and splits, and scorned by every jewel-merchant in Hamburg or Holland—you were glad, then, to pack me off to Russia.'

'And I'd be glad, now, if you were in such a position, to send you foreign. We want a watcher in Paris; we want a better chap for a roving tour in Italy. As it is, I gather that you want us, not we you. Well Jack, once again, what would you have of us?' And this time Mr Silas Melville spoke rather impatiently. He was used to take the first place, not the second, in the many conversations that he daily held; and the cool, tacit assumption of superior strength and daring, possibly of superior station, which had always annoyed him in his former intercourse with Chinese Jack, even when the two men wore red flannel shirts and suits of homespun, and plied the pick, and washed the gold-dust beneath the burning sun of California, vexed his irritable nerves.

'It's a fifty-pound job I want,' said the client slowly; 'or, as your sort of business is expensive, we'll say a seventy-pound job—not more; and I want, mind, work for my good gold and silver. You'd get, of course, five times as much from silly swells; but I can't afford it. There's a foreign woman—a lady—lately come to London, respecting whom I want information.'

'Name?' asked the American, getting down a slim register from a shelf, unclasping it, and dipping his slender pen in the great Black Sea of ink contained in the huge silver inkstand before him.

'Louise de Laloue is her name—Countess, she is generally called—sometimes merely Madame,' was the answer.

'Nationality?' asked Mr Melville, when he had completed his first careful entry in the slim book.

'Ay, there you puzzle me,' affably returned the customer. 'I never could make out, quite, and yet I knew her pretty well. It is hard sometimes to know where people do hail from. Don't you remember, Silas, that when you came to Baltimore, people were calling me Hans the Dutchman, and believed me to be as thorough a German as the Iron Prince himself.—French, you can write down, with a dash of Russian. You'll easily find her—I could find her myself—by asking questions of the porters and servants at the foreign embassies. The Russian ambassador's is a sure card. It isn't in Leicester Square you're to look for her. Likely as not, she's at *Mivart's Hotel*, or the *Alexandra*. What I want is, less to know where she is, though that is necessary too, than to know what she does.'

'You mean,' asked the American, pausing, pen in hand, after he had made some rapid notes in microscopic writing, 'that you want a sharp watch to be kept upon her proceedings, Jack?'

'Yes; and for old partnership's sake,' let the watch be as real a one as that we used to keep, when forty winks at day-dawn might have cost us both our scalps. One request more. Let the man you set upon that woman be an Englishman, not a foreigner. So shy a bird would take the alarm ten times quicker if you put a greasy Pole or an almond-eyed Italian to hang about her door and dog her through the streets, than if you selected a stolid-faced countryman or a pale Londoner. Not a Jew, though. Sharp as Isaac's eyes are, those eagle features of his attract too much notice. I can rely on you, Silas, to pick me out a smart spy with an honest look, if you can manage it.'

'You shall have—let me see; yes; the man I mean will be off duty to-morrow—a fellow whose dull-seeming eyes let nothing pass unobserved, and yet who can loiter at street corners, and chew his straw and kick his heels, the most vacuous loafer there,' promised Mr Melville.—'Where shall I write you news of the results? Or will you call?'

'I will call, but not too often. Time, I know, is money. My address is—Budgers's Hotel, Jane Seymour Street,' replied the Captain. 'Ta-ta, Silas.'

'Good-bye, Jack,' responded the American; and so they parted.

(To be continued.)

THE IRISH FISHERIES.

THE history of the Irish fisheries for the last thirty-six years is one long record of continuous, though fluctuating depression. The fishermen, especially those on the western coast, have never really recovered from the effects of the famine year, and for the most part still struggle against almost overwhelming obstacles to maintain themselves and their families. By far the larger proportion of the fishing population of Ireland are indeed chiefly occupied in other avocations. The collection of seaweed, or the tilling of land, either as occupiers of small holdings or as day-labourers,

occupies most of them during nine months of the year; for, though a brave and hardy race, it is impossible for them to venture out in their crazy craft in 'dirty' weather. If it were possible to place them upon a more equal footing with their English fellows, so that they might prosecute their legitimate calling vigorously, and not spend arduous days in cultivating the sterile and unproductive soil, which is all that can be said for most of the Irish seaboard, they could easily be weaned from the evil influences of uncongenial and unprofitable agricultural pursuits, and removed from a state of extreme penury to one of comparative comfort.

As it is, however, the poor Irish fisherman of Kerry, Clare, or Mayo may well be discontented. While he digs his unproductive land, he can see in the offing well-appointed English and French trawlers reaping that rich harvest which, but for his poverty, he could share. From the Returns for the year 1881, the latest available, we find, for instance, that at Howth, the headquarters of the herring-fishery on the east coast, the boats employed were seventy-two English, two hundred and three Scotch, and a hundred and ten Irish. Again, the mackerel-fishery off the western and south-western coasts is almost entirely followed by fishermen from England, Scotland, and France. Thus, thirty-six boats fished from Smerwick harbour in 1881; but of these, only two were Irish, the remainder being English; while the average value of the take per boat exceeded three hundred pounds for one month's fishing.

Ireland is divided into thirty-two districts for the purposes of fishery inspection, and throughout the whole of these, only four thousand three hundred and sixty-one men and four hundred and sixty-nine boys are reported as being solely engaged in fishing; while sixteen thousand five hundred and ninety-four men and three hundred and eighty boys were only so employed partially. These figures are not, of course, perfectly reliable, for they include those fishermen of other countries who worked from Irish ports. They are, however, sufficient to prove that there is little doubt that three-fourths of the Irish fishermen pursue their ostensible calling only desultorily and intermittently, in consequence, chiefly, of their defective boats and gear, and of the difficulties of putting out to sea from unprotected harbours, where no conveniences for launching or landing boats exist.

The development of the Irish fisheries is a question of the greatest moment at the present juncture. Besides those who are returned as belonging to the class of fishermen, at least as many more of the maritime population of the country would doubtless gladly avail themselves of any facilities for pursuing a remunerative calling. Toilers in the sea are, all the world over, self-reliant and independent, and the moral influences which would be exercised by the existence of such a class on the coasts of Ireland would very possibly be more widely felt than might at first sight be supposed. Nor is the required aid of such a character or extent that schemes for supplying it need be characterised as chimerical. The existing Irish Reproductive Loan Fund furnishes an excellent practical example of the means by which the regeneration of Irish fisher-

men might be accomplished, and might itself form the nucleus of a more extensive machinery. This fund is the result of the large sum subscribed for the relief of distress in Ireland in 1822, and was by a subsequent statute vested in the Treasury, to be applied to charitable purposes and objects of public utility, not otherwise provided for by public rate or assessment, in the counties to which it is appropriated, in the proportion appropriated to each county. In 1874 the balance of the fund was by another Act of parliament transferred to the Commissioners of Public Works in Ireland to use by way of loans for objects similarly restricted; and it was then provided that in the case of the maritime counties of Clare, Cork, Galway, Kerry, Leitrim, Limerick, Mayo, and Sligo, these objects should include the fishing industry.

Additional and vexatious restrictions were, however, imposed upon the Commissioners. Thus, only the sum appropriated to a particular county is available for that county, and of this, only one-fourth can be used for fishery purposes in one year; while the amount of outstanding loans must at no time exceed one-half of the sum standing to the credit of the county. The obvious effect of these restrictions is that in some counties the money has for a long period been lying idle, while in others it is wholly insufficient to meet the demand. Thus, the sums which stood to the credit of Roscommon and Tipperary in 1881 were respectively six thousand one hundred pounds, and four thousand two hundred pounds, and these have been unemployed and unproductive for the last seven years; while, on the other hand, in County Mayo, only six hundred and ninety pounds was available, and two thousand two hundred and fifty-three pounds was applied for on loan. Again, in order to make the matter quite clear, we may give the following figures from the Report, which plainly indicate the evils of the present arrangements. Thus, in Sligo, in 1881, four hundred and eighteen pounds was available, and seven hundred and twenty-seven pounds was applied for; in Galway, the corresponding figures were eleven hundred and thirty-seven pounds, and two thousand three hundred and thirty-seven pounds; and in Clare, three hundred and fifty-eight pounds, and thirteen hundred and twenty-six pounds; while in Limerick and Leitrim the money in hand was largely in excess of the demand. Again, the County Donegal, which has an extensive seaboard and an industrious but very poor class of fishermen, is excluded from the fund—a fact to which we would earnestly invite attention just now, since the reports which reach us from that part of Ireland plainly indicate that it is in a distressful state. Perhaps the totals for the seven years ending 1881 are more conclusive still; thus, we are told that in this period, the sum of one hundred and eleven thousand one hundred and seventy-eight pounds was applied for, and forty-eight thousand six hundred and ninety-six pounds was available to meet this demand; but that about one hundred and forty-six thousand pounds was lying idle and unproductive. Further comment on these figures is needless.

It is doubtful whether the diminished take of

nearly all kinds of fish, of which reports reach us from time to time, points to anything more than the peculiar difficulties under which Irish fishermen labour. Off all the coasts of Ireland there is an abundant supply of fish, a fact which is proved with sufficient exactitude for our present purpose by the continued presence of the fishing-boats of other countries in those waters. Off the west coast especially, where the Irish fishermen are so notoriously poor and wretchedly equipped, boats properly fitted up make prodigious captures. Thus, a large number of French vessels attend the mackerel-fishery off the Irish coast; and no fewer than one hundred and eight French boats fitted with steam-gear were so employed in 1881. It is, of course, quite impossible to ascertain whether these vessels were very successful; but the inference is obviously in the affirmative. The fact that there has been a continued decrease in the take of herrings for the past four years is certainly ominous; but we are very reluctant to accept the conclusion that 'this valuable fish is about to desert the Irish coast,' although the contention is supported by similarly decreasing takes off some of the Scotch and English coasts. Attention is directed by the inspectors to the unaccountable prejudice which Irish fishermen entertain against pilchards, which have of late years regularly appeared in large shoals off the southern coasts of Ireland. If this could be overcome, a lucrative branch of the fishing industry might be created on the coasts of Waterford and Cork; for at Baltimore, in the latter county, in 1881, 'thirty-five casks of pilchards were cured in the Cornish fashion, and sold at Genoa at three pounds ten shillings per cask.'

The Irish oyster-fisheries have long shared the general depression, although this can be explained by the rough weather which prevailed during a great part of the last two seasons. Very considerable quantities of French oysters have, too, lately been imported from Auray, Arcachon, and other places, and have been laid down in the beds off Arklow, Courtown, and elsewhere, and have in general done very well. A bylaw has also been passed, and is now in force, which prohibits the destruction or removal from the natural oyster-beds between Wicklow Head and Raven Point, County Wexford, of small unsizable oysters. The minimum diameter of oysters which can be lawfully taken from these beds is, too, now fixed at two inches. It may certainly be confidently hoped that these measures will soon have an appreciable effect upon the productivity of the Irish oyster-fisheries.

We have already indicated the great promise of the mackerel-fishery off the western coasts of Ireland. But two other points suggest themselves for consideration in connection with this branch of the Irish fisheries. The most important of these is undoubtedly the urgent necessity which exists for providing increased facilities for the transit of fish, and better accommodation for fishing-boats. As we have already stated, many of the fishermen are at present unable to put out to sea, often for weeks together. The construction of a breakwater and landing-slip at Smerwick harbour, for instance, certainly seems to be much needed, although it would, of course, be a work of considerable magnitude, and would involve an expenditure of about fifty thousand pounds.

Since, however, the matter is one of national importance, it is well deserving of the consideration of the government. Some such projects must indeed be set on foot if the sea-fisheries on the south-western coast of Ireland are to be developed. As an example of their productiveness, we may mention that besides mackerel, many kinds of valuable fish are there to be had in abundance, such as cod, ling, turbot, sole, haddock, pilchards, and herring, in the different seasons. Readier communication with Foynes and Tralee, the two railway termini from which the greater bulk of the produce of these fisheries comes, is urgently required. At present, it takes nine hours to convey the fish to Foynes by steamer; whereas if they could be landed at Fenit, for instance, which would occupy about three and a half hours, they could at once be placed on a line of railway communicating practically with all parts of Ireland.

Besides these matters, better protection of these rich fishing-grounds from foreigners is certainly needed. A Convention which is still in force between England and France provides that the fishing-boats of one country shall not approach nearer to any part of the coasts of the other country than three miles, except when carried within this limit by contrary winds, strong tides, or any other cause independent of the will of master and crew, or when obliged to beat up in order to reach their fishing-ground. As a matter of fact, however, these regulations are openly disregarded. French vessels use our harbours and roadsteads in much the same way as our own vessels. They also interfere with our boats in their mode of shooting their nets, and not only fish within the prescribed limits, but actually in the bays along the coast. The desirability of police cruisers regularly attending the mackerel-fishery off the mouth of the Shannon is, indeed, abundantly manifest.

Evidence of the unsatisfactory working of the reproductive loan system in Ireland, so far as agriculture is concerned, has very recently been made public; and it is, of course, no part of our present purpose to discuss this topic; but it is interesting to contrast the admitted results of the same system so far as it has been applied to the fisheries. The practical working effects of the system of granting loans to fishermen are not a little remarkable. For instance, cases in which loans as small as six, ten, twelve, and twenty pounds, have realised in a few months' fishing twenty-five, thirty, forty, and up to eighty pounds, have been officially reported, with the significant additional fact, that but for these loans, many of the parties could not have fished, and they and their families would, in most cases, have been obliged to go into the workhouse. In another specially reported case, a crew made upwards of one hundred pounds a year for two years by borrowing fifteen pounds; and in a third, one small craft, which cost, with fitting-out complete, not more than twenty pounds, realised over eighty pounds during a single season.

These facts and figures are peculiarly pregnant. They go far to prove that the development of the Irish fisheries is by no means so hopeless a task as it is the fashion to assume. We have said enough to indicate the scope which exists for help in this direction. The social, material, and poli-

tical results of an extensive movement of this character could, indeed, hardly fail to be of the utmost importance in restoring a better feeling between the inhabitants of the two countries, in removing some of the sources of discontent, and in proving that above all things the great heart of England desires Ireland's welfare.

QUEER EXCUSES.

Few people when found fault with seem to forget the adage, 'Any excuse is better than none.' 'Cabby, if you do not drive faster, I will give you no *pour-boire*,' said a French gentleman. 'I have already run over two persons, and Monsieur is not yet satisfied,' was the unexpected reply. An equally ready excuse was made by another driver in Paris for *not* running over a foot-passenger. The horse was just about to knock down a lady, when the cabby, by a superhuman effort, reined the animal in, checking it so sharply that it reared up upon its haunches. 'Bravo, coachee; nobly done!' exclaimed a spectator. 'I wouldn't have upset her for the world,' replied the coachman. 'She would have been my thirteenth this month, and thirteen is always an unlucky number.'

The other day, a Paris lady abruptly entered her kitchen, and saw the cook skimming the soup with a silver spoon. She said to her: 'Françoise, I expressly forbade you to use the silver in the kitchen.'—'But, Madame, the spoon was dirty.'

'This is the sixth time that you have been here without saying a word about the money you owe me, Monsieur,' said the mistress of a Marseilles cigar-shop to a young Bohemian journalist. 'What am I to understand by it?'—'Ah, Madame,' said the clever journalist, 'when one sees *you*, one forgets everything!' A pretty enough compliment, it is true, but a peculiar defence for running into debt.

Most youngsters from constant practice get fertile in inventing excuses. 'Why, Georgie, you are smoking!' exclaimed an amazed mother, who came upon her little son as he was puffing away at a cigar. 'N—no, ma; I am only keeping it lighted for another boy.'—'Did you break that window, boy?' said a grocer, catching hold of the fleeing urchin. 'Yes, sir.' 'What do you mean by running off in this manner?' 'Please, sir, I was running home to get the money. I was afraid if I didn't run home quick, I might forget,' was the instant explanation.—It must have been an Irish boy who wrote in a postscript: 'Dear father, forgive these large blots on my letter, but they came while the letter was passing through the post. I write this for fear you should think I made them myself.'—At a juvenile party, a young gentleman about eight years old kept himself aloof from the rest of the company. The lady of the house called to him: 'Come and play or dance, my dear. Choose one of those pretty girls for your wife.' 'Not likely,' cried the young cynic; 'no wife for me. Do you think I want to be worried out of my life, like poor papa?'

An equally pertinent reason for remaining single was given by a young lady of twenty, whose friends tried to persuade her to wed a man of fifty. 'He was neither one thing nor another,' she said; 'too old for a husband, and too young to hold any hope of immediate widowhood.'

In a case before the magistrates in which a man was charged with threatening his wife with a carving-knife, the defendant, to the amusement of the court, said 'he ought to have taken the advice given by old Weller, "to beware of the vidders." That was all he had to say in his defence.' He was reminded by the bench that his recollection of that advice would not avail him much if he broke the law by threatening his wife; and he was bound over to keep the peace.

Intoxication is often pleaded by prisoners in their defence, coupled at times with very odd excuses. An Irishman not long since was summoned before a bench of county magistrates for being drunk and disorderly. 'Do you know what brought you here?' was the question put to him. 'Faix, yer Honour, two policemen,' replied the prisoner. 'Had not drink something to do with bringing you here?' said the magistrate, frowning. 'Sortinly,' answered Paddy, unabashed; 'they were both drunk.'

The inebriate, who, on being reproached for not leading a regular life, denied the charge by saying 'he returned home every night intoxicated,' was scarcely so ingenious in his defence as the Scotsman in the following. 'Hilloa, James, tipsy as usual. What in the world has set you on the spree now?' 'Ah, ye maunna be harsh, governor—did ye no hear my grand whistling canary was deid?' 'Stupid fellow! leaving your work and getting drunk for the death of a bird. Don't you know a man should look upon such incidents as trifles?' 'So I do, governor, so I do, man; but if ye wanted a spree yersel, ye wad be glad of any handle to turn the crane wi'.'

Legal annals could furnish many instances of quite as queer excuses pleaded by the accused, as the following. The widow of a French chemist famous for his researches in toxicology, was on trial for poisoning her husband. It was proved that arsenic was the medium employed. 'Why did you use that poison?' asked the presiding magistrate. 'Because,' sobbed the fair culprit, 'it was the one he liked best.'

A man accused of appropriating a pair of boots, explained that 'his intentions were far from stealing them. The reason he continued wearing them was that he had not enough money to buy another pair; and when he had drawn his next wages, he would most certainly have bought a new pair, and taken them back.' This defence was not considered satisfactory, and he was committed for trial.

There is a Yankee smack about the following. The clerk of the court bade the witness give his name and hold up his hand to be sworn. He took the oath with such dignified composure, that every one felt there stood before them a calm, self-collected, truthful man, whose evidence would go far to convince the minds of the jurors in this sensational case. 'There was a distinct murmur as people settled themselves to listen to his testimony. 'Now, sir,' said the judge, 'tell the jury what you know about the matter.' 'I don't know anything about it,' replied the witness blandly. 'Then may I ask why you had yourself summoned as a witness?' 'So as to get a good sight of the prisoner and the Court. Tickets weren't to be had for love or money.'

A prisoner who had been convicted at least a dozen times, was placed at the bar. 'Your Honour, I should like to have my case postponed for a week; my lawyer is ill.' 'But you were captured with your hand in this gentleman's pocket. What can your counsel say in your defence?' 'Precisely so, your Honour; that is what I am curious to know.'

THE MONTH.

SCIENCE AND ARTS.

THE suggestion embodied in a paper lately read before the Society of Engineers by Mr W. C. Anderson of Leeds is worthy of grave consideration. His proposal is rather a startling one—namely, the construction of deep-sea lighthouses. At first sight, the scheme would appear to be quite impracticable; but when we hear the methods suggested for the construction and anchorage of the contemplated beacons, the realisation of the conception seems to be within the bounds of possibility. The proposed lighthouse would represent a hollow cylinder of riveted iron-work thirty-six feet in diameter and two hundred and ninety feet long. This would consist of two sections, the upper part, one hundred and forty feet long, destined to rear its head above the water, and possessing all the fittings and appliances of an ordinary lighthouse; and the remaining portion of the tube ballasted so as to sink below the water-line, and to counteract the presence of wind and waves on the exposed part of the structure. The middle portion of the cylinder about the water-line would be packed with cork-wood, so as to render the structure unsinkable, and the whole would be moored to anchor-blocks in deep water by steel cables two inches in diameter. The inventor suggests that it would be easy to tow such a structure to the spot selected for it, and then, by admitting water to its lower compartment, it would assume an upright position in the ocean, and would ride on the waves like a bottle.

Should this hopeful scheme be ever carried out, it will fulfil a want that has long been acknowledged as a necessary one. Owing to our insular position, we are dependent for our storm-warnings upon our transatlantic neighbours; but if it becomes possible to found a floating telegraph station, say, one thousand miles from our shores in mid-Atlantic, we could have warnings of coming storms quite twenty-four hours before their arrival; and such warnings would be far more reliable than those we at present have, for many of these latter refer to disturbances which are dissipated long before they can reach us. We need hardly point out the immense saving of property, to say nothing of human life, which would be possible could we be warned in time of coming 'dirty weather.' We trust that Mr Anderson's scheme will receive official attention.

We are gratified to see that another important invention conducive to the saving of life, Fleuss's system of breathing under water and in poisonous atmospheres, is now obtaining government recognition. Three years ago, there appeared in *Chambers's Journal* the first published explanation of this clever apparatus, and we then ventured to

predict that it would prove valuable in saving life in colliery disasters, by enabling rescuers to move about unharmed in irrespirable gases. This prediction has happily been fulfilled in more than one case. Under these circumstances, the Home Secretary has issued a circular to the owners of coal-mines throughout the kingdom, suggesting that in the same manner that our dangerous coasts are studded with lifeboat stations, so should all mining districts have their life-saving depôts, where the Fleuss apparatus should be stored in sufficient numbers, and maintained in readiness for instant use. 'A rescuing-party could thus be speedily on the spot after the occurrence of an accident in a particular district in which a station had been established.' Accompanying this circular is the copy of a paper showing the operations carried out at Seaham and Killingworth collieries with the Fleuss apparatus and lamp, and explaining the conditions essential to the application of both in the saving of lives. Amongst other specialties connected with the Fleuss apparatus is an improved mask, which is said to be at once simple and effective.

The Fleuss lamp, although most efficient for special employment, is, we fear, rather too expensive for everyday use. Indeed, a safety-lamp which shall meet all requirements satisfactorily, has yet to be invented. So evidently thinks Mr Ellis Lever of Bowdon, Cheshire, who has backed his opinion by the handsome offer of a premium of five hundred pounds for the invention of a portable electric or other safety-lamp to be used in mines. The conditions are as follows: The lamp must be self-contained, and one which miners can conveniently carry from place to place. It must give a useful amount of light for not less than twelve hours, and explosion of surrounding atmosphere must be impossible, under any circumstances likely to occur. No existing lamp can compete, and competitors must send lamps in a condition fit to be tested, and not mere drawings or specifications. No lamp must be sent to the adjudicators before December 1, and none after the last day of that month. The address to which they must be so sent is 2 Victoria Street, Westminster, London, S.W.

M. Bissinger has made a communication to the Society of Physics and Natural Sciences, Carlsruhe, on the magnetisation of iron and steel bars when submitted to a breaking-strain in order to test their quality and strength. The two halves of such a bar when broken are magnetised to an equal extent, and iron objects which happen to be round about the testing-machine are also affected by induction, but to a lesser extent. M. Bissinger attributes the phenomenon to the shock and trembling of the metal at the moment of breaking. It can perhaps be compared to the old experiment of holding a common poker in the direction of the magnetic dip, and striking its end a sharp blow with a mallet. After such treatment, it exhibits all the properties of a permanent magnet.

Those who have had much to do with powerful electric apparatus know to their cost that a watch can be absolutely ruined by the magnetisation of its steel parts. The Commission of the coming Electrical Exhibition at Vienna, in view of this inconvenience, are having constructed a number of iron cases for the timekeepers of those whose

duties compel a near approach to dynamo-machines.

There seems to be a common notion abroad that these dynamo-machines are destined at no very distant date to supersede the steam-engine for the thousand-and-one uses to which steam is at present applied. This in point of fact cannot be, for a dynamo cannot be employed unless we have some force by which to drive it. 'As it is, we burn coal to make steam, use that steam to drive a dynamo, and then apply the electrical result to purposes to which the steam is directly applicable.' It would thus be absurd to look to steam for the source of energy, for it could be employed direct and far more economically by means of an ordinary engine. At the Port-rush Railway, which is to be worked by an electro-motor, a powerful waterfall is available, and the scheme will on that account most likely prove successful—that is, profitable. In the canton Vaud, Switzerland, measures are being taken to install electric illumination in place of very expensive gas, the force being furnished through the medium of turbine-wheels of five thousand horse-power, driven by the river Orbe. It is possible that many other places will profit by these examples, when it is known that electricity is capable of turning to such useful account those physical features which up to this time have been valued only for their beauty.

The telephone has lately been successfully used between New York and Chicago, a distance of one thousand miles. This is the longest telephone circuit on record, exceeding by three hundred miles the one previously established between New York and Cleveland. This extended length of circuit has been rendered possible by a new form of conducting-cable, consisting of a steel-wire core copper-plated. This conductor offers far less 'resistance' than the ordinary iron wire in common use for telephonic purposes.

Dr H. Cook's 'Notes on a March to the Hills of Beloochistan in North-western India, with Remarks on the Simoon and Dust-storms,' which he recently brought before the Meteorological Society, present many points of novelty and interest. Although the heat of summer is greater than that experienced in Britain, the weather is far less variable, and the climate generally is delightful, comparing favourably with that of the plains. The atmosphere is clear, and the winds dry and bracing, while the fruits and crops generally ripen early in consequence of the constancy of fine weather. With regard to dust-storms, Dr Cook attributes them to excess of atmospheric electricity. The simoon, which generally occurs in July and August, is very sudden in its appearance, and occurs at night as well as during the day. He compares the hot wind to the blast of a furnace, accompanied by a sulphurous odour, and believes it to consist mainly of a concentrated form of ozone.

In Professor Hull's paper on the Physical History of the Dead Sea, brought before the Royal Dublin Society, we find much interesting matter. In 1836 it was determined by barometric observation that the surface of the Dead Sea lies no less than thirteen hundred feet below the level of the Mediterranean. During the Pluvial (rain) period, which succeeded the Glacial (ice), this sea or lake reached its maximum elevation.

With increasing dryness of the climate, the water gradually decreased, and during its contraction and lowering, those terraces along its borders, marking former surface-levels, which are so familiar to travellers, were formed. These terraces range up to eight hundred feet above the present level of the water. As the water gradually decreased in volume, it became first brackish, and then salt, as many lakes will if they have no outlet. The surface-water now contains twenty-four per cent. of saline ingredients; and deeper down, the maximum of salt-impregnation occurs, or in other words the salinity amounts to saturation. The Mediterranean holds in solution but one-fourth of that quantity of salt.

Just one hundred years ago, the Brothers Montgolfier, whilst watching the smoke rising from the chimney of their father's paper-mill at Annonay, conceived the idea of the hot-air balloon, a contrivance which caused more excitement and enthusiasm than perhaps any machine previously introduced. The enthusiasm is by no means dead, for the good people of Annonay have collected from willing subscribers the sum of sixty thousand francs, in order to celebrate in grand style the centenary of the first balloon ascent. On the 6th of June, a statue of the two brothers is to be erected, a copy of the first balloon is to be made to ascend, and several ascents with more modern forms of balloons will also be organised. It is curious to reflect that beyond the mere improvements which advances in manufacturing processes have rendered possible, the balloon as an instrument of flight remains the same unwieldy, unmanageable thing it was one hundred years ago.

A correspondent of *Nature* writing from Trinity College, Hartford, U.S.A., gives particulars of a very unusual phenomenon which was experienced there lately. The ground was covered with a hard crust of snow, which had fallen two days previously, when a fresh fall of light damp snow occurred. A south wind rising some hours later rolled the particles of new snow along, so that they gathered fresh particles as they moved, with the result that the ground was covered for many acres with natural snowballs. These were not spherical, but cylindrical, the largest measuring eighteen inches in length, and having a breadth of twelve inches. This phenomenon is very rare, but has been observed before, notably in New Jersey in the year 1808, when it occurred in daylight, so that the whole process could be watched. On this occasion, the snowballs reached a diameter of three feet, some of them leaving a long track, showing the road which they had travelled, until they grew too heavy for the wind to move.

Commenting upon this phenomenon, Mr G. H. Darwin likens it to certain mudballs which he has more than once observed in the Kentish lanes round about Bromley. These, made of soft clayey mud, varied in size from a mere pellet to four or five inches in diameter, and it was difficult to imagine that they were not made by hand. But their formation was due to accretion as pellets of mud rolled down hill after rain, their rarity being doubtless attributable to the circumstance that they can only be formed when the soil is in a particular state of stickiness.

Encouraged by the interest aroused by his photographs of animals in motion, and possibly

also by the welcome which he lately received in this country, Mr Muybridge of California has been induced to issue a prospectus of 'a new and elaborate work upon the Attitudes of Man, the Horse, and other Animals in Motion.' The subscription for this remarkable work is twenty pounds sterling, a large sum certainly, but not a very extravagant one, when it is remembered what costly appliances are necessary before these pictures can be obtained. The work will be of great interest to artists as well as scientific men, and intending subscribers should communicate with Mr Muybridge, Seovill Manufacturing Company, Publishing Department, 419-421 Broome Street, New York.

An extraordinary occurrence was reported by the officers of the steamer *Aquila*, which left Weymouth for the Channel Isles on March 30 at midnight. The weather was calm and clear, and the sea was perfectly smooth, until the steamer had proceeded about sixteen miles out, when a heavy sea struck the ship, knocking her on her beam-ends, flooding cabins and engine-room, smashing skylights, and doing other damage. For five minutes the greatest terror prevailed among the passengers, who were much knocked about. At the end of that time, the sea became calm as it was before. The cause was due possibly to some underground convulsion upheaving the sea.

The destruction in Great Britain of six ancient mansions by fire in the short period of a few months, besides other disasters of a similar character at home and abroad, has once more aroused attention to the causes of these terrible occurrences. The Hon. Secretary of the British Archaeological Association, deploring them from an antiquarian point of view, has ascertained that the six fires above referred to were directly traceable to the firing of timber-beams either beneath the fire-places or in proximity to the chimneys; and he advises all owners of similar homes, the loss of which is national as well as personal, to put their houses in order in this respect. From the correspondence that has been published on this topic, we are led to believe that many conflagrations have occurred from quite unsuspected causes. Thus one gentleman relates how he saw the dress of a lady begin to smoulder from the concentration of the sun's rays by the lens of a graphoscope which stood on a table by her side. Not long ago we ourselves noticed how a photograph in an optician's shop-window showed charred spots through being exhibited, as is often the case, behind a similar lens. Two other independent correspondents record how the wicks in their carriage-lamps have been brought to a smoking state by the sun's rays focused upon them by their concave reflectors. Even a carafe of water has been known to focus the sun's rays to burning-point. With these facts in view, we can easily imagine how many apparently mysterious fires have happened from similar causes. Knowing as we do that prompt measures taken at the first outburst of fire may save the premises, we have introduced into those of this *Journal* half-a-dozen handy little portable fire-extinguishers, termed 'The Rapid,' which seem all that can be desired. They are manufactured by R. & J. Jarvie, 19 Stobeross Street, Glasgow.

The sadness of recent events in connection with

explosive substances is apt to make us forget their immense commercial importance. Professor Abel, in a lecture recently delivered at Glasgow, gave some figures bearing upon this subject which will surprise those who are not conversant with mining operations. Sixteen years ago, the manufacture of dynamite was unknown in this country, and the whole quantity made in other lands amounted annually to about eleven tons. Last year the production in this country alone amounted to eleven thousand tons. The manufacture of the more powerful explosive called blasting gelatine is increasing, and it is expected that, as it is one of the most perfect explosives known, it will gradually drive dynamite out of use. It is a comfort to learn that these terrible agents are extremely local in their effects, and that even the explosion of a large quantity would only affect a very limited area. With a vigilant police force, strengthened by the new Explosives Bill, the nefarious use of even small quantities will become next to impossible.

We lately made mention of two new methods of manufacturing gas for illuminating purposes. We have now to record the method adopted by the Dixon Patent Gas Company, of 49 Commercial Road, Liverpool. The patentee, Mr John Dixon, gas-engineer, Richmond, near Melbourne, claims to have discovered an improved gas, which is manufactured chiefly from kerosene, or any of the hydrocarbon oils, with certain other ingredients. In the process of manufacture, the mixtures are put into a tank, and, by a mechanical arrangement, intermittently injected into heated retorts. The gas generated in these retorts is conducted by pipes to an hydraulic main, through which it passes to the purifier, and thence to the gasometer, where it is stored for use in the same way as coal-gas. The average illuminating power of Dixon's patent gas is said to be from twenty-five to seventy-eight standard candles, according to pressure and the kind of burner used; while it can be produced more cheaply than coal-gas. Arrangements are now being made, we understand, for the introduction of this gas into the Aberdeenshire village of Ballater.

If people were as readily scared by warnings as to the danger of living under unsanitary conditions, as they are by the discovery of a few pounds of dynamite, how much healthier the nation would be. The one cause of danger to life is unusual and sensational, so they give heed to it; but fever, far more deadly in its effects, is so common, that it goes unheeded. We are prompted to this remark after perusing the Report of one of the medical officers of London concerning a charitable institution where typhus fever has manifested itself. 'The diagnosis,' says the doctor, 'was at first hard to make, from the dirty condition of the children in the institution.' The place was over-crowded with more than three hundred inmates. The rooms were badly ventilated, to such an extent as to be injurious to health, and he was 'not surprised that typhus fever should have spread in such an atmosphere, and under such neglect of personal cleanliness.' It is disheartening to think that in these days, when men of science are working so hard to solve and combat the mystery of suffering, the class which suffer most are, by their ignorance and stupidity, doing so much to propagate

disease. *Health*, the recently started weekly journal, will doubtless find this a useful subject for its pages.

The *Live-stock Journal* gives particulars concerning a new fertilising agent which is much used in the north of France. It seems that many of the farmers there not only cultivate beetroot but also manufacture sugar from it. After this sugar has gone through the necessary process of refinement, a residue is left, which is a coarse kind of molasses or treacle. This, until lately, was regarded as a waste product; but chemistry has pointed out that it contains all the goodness which the beet has in the process of growth drawn from the soil. So it is once more returned to its original dust, with the result that a fresh crop can be relied upon without any other fertilising agent. Even wheat will grow upon the ground so treated—'a fact that oddly suggests the existence of a subtle affinity between the elementary constituents of bread and treacle.' But the time during which cereals can be grown under such conditions is very limited, unless phosphate of lime is added to this novel kind of manure.

Although we are not all of us inclined to agree with those old-fashioned folk who continually speak of 'the good old times,' and refuse to admit that there is good in the present, we many of us half regret that modern progress is rapidly shutting out scenes and circumstances which for centuries have formed the themes of poets. The steam-engine has long ago invaded the meadow and the harvest-field; and the typical sower, reaper, and gleaner are now confined to the pages of books. Although Britain is not backward in this reformation, or deformation as some will call it, our go-ahead cousins across the Atlantic are far in advance of us; at least it would seem so from the lately issued Report of the Census Department of the United States. In this document, we find a list of nearly two thousand agricultural implement-making establishments, with a catalogue of the appliances which they manufacture. This catalogue gives a fair idea of the manner in which our mother-earth is teased and tortured by modern machinery. It includes corn-planters, cotton-planters, grain-drills, grain-sowers, seed-sowers, transplanters, clod-crushers, cotton-choppers, cultivators, harrows, hoes, ploughs, rollers, fruit-gatherers, grain-cradles, harvesters, hay-loaders, horse-rakes, lawn-mowers, potato-diggers, reapers, reapers and mowers combined, scythes, clover-hullers, corn-huskers, corn-shellers, threshers, cane-mills, cider and wine mills, hay-and-straw cutters, stalk-pullers, stone-gatherers, stump-pullers, and sirup-evaporators. If necessity had not already been named the mother of invention, America might with some reason have claimed the honour of maternity.

OCCASIONAL NOTES.

NEW SYSTEM OF FIRE-ALARMS.

THE Watch Committee of the corporation of Nottingham have instructed the National Telephone Company to institute a system of fire-alarms throughout the borough. These fire-alarms accomplish their purpose by means of electricity. An iron box with a glass face is

fixed into a wall, and inside the box is an apparatus which is connected by wire with the central police and fire stations; to raise an alarm, the glass in front of the iron box has to be broken. This breakage causes a strong spring to plunge forward, throwing a current on the line, which releases an armature producing a red disc, indicating the name of the place where the alarm has been given; at the same time, a bell rings in connection with all the firemen's houses and the central station, so that the men receive the alarm at the same moment. The whole arrangement works automatically, and only from three to four seconds is lost from the time the alarm is given. The Company have already placed boxes in fifteen busy thoroughfares; several more will shortly be put in operation. Although the breaking of the glass panels will generally be undertaken by police officers, the public will be at liberty to do so in cases where promptitude is requisite. It may be added that the bell at the fire-station continues to ring until a new piece of glass has been inserted in the alarm-box. The work is under the personal superintendence of Mr J. O. Fry, District Manager and Secretary, National Telephone Company's Central Exchange, 3 Bottle Lane, Nottingham. This Company have completed an extensive telephone service for the corporations of Nottingham, Glasgow, Edinburgh, Greenock, Dundee, Aberdeen, Leeds, Bradford, Halifax, Birmingham, Belfast, &c. In Nottingham during last year, forty thousand pounds-worth of property was saved by this speedy means of communication through the telephone. When we add that there is a saving of several minutes in communication through the telephone as against the telegraph, the special value of the former will at once be apparent.

CALIFORNIA.

California, the second State of the American Union in size, at first noted for its mineral wealth, is now rapidly developing its vast agricultural resources. It has great varieties of climate, heat and cold alternating, to the discomfort of the traveller. The fruits of California grow in great profusion, and with so little cultivation, that they seem almost spontaneous. Some of the fruits may not come up to the expectation of the traveller; but there can be no disappointment with the pears and grapes. All varieties of pears grow there to the greatest perfection, and the choicest varieties are sometimes a drug in the market. About one hundred thousand acres are at present under vine-culture, all of which, when fully bearing, will, it is estimated, yield from forty to fifty million gallons of wine yearly. The product of the 1881 vintage was nine million gallons.

The greatest natural wonder in California is the famous Yosemite Valley. While the Falls of Niagara are only one hundred and sixty-three feet in height, the highest fall in the Yosemite Valley leaps down sixteen hundred feet without a break; a second lower fall, six hundred feet; and a third, four hundred and thirty-four feet—there being eleven distinct falls in the valley.

Every one has heard of the big trees of California. The Big Tree Grove, in Calaveras County, has an area of fifty acres, and contains

one hundred and three trees, twenty of which exceed the enormous girth of seventy-five feet. One of these giants of the forest has been lately cut down. To accomplish this required the labour of five men for twenty-five days, with pump boring-augers and other appliances. When completely severed, two-and-a-half days' labour were required to throw the trunk from its broad base. This tree was three hundred and two feet high and ninety-six feet in circumference at the ground, and its annular growth-lines showed over three thousand years of life. A house has been built upon this giant stump for theatrical and other entertainments. A roomy house for a small family could thus be constructed on a single stump of these trees! The most celebrated forest of big trees, the Mariposa Grove, is situated about fifteen miles south of the Yosemite Valley, and was ceded by Act of Congress to the State of California for preservation. It contains one hundred and twenty-five trees which are more than forty feet in circumference. One tree in the grove, now partially burned at the base, was originally more than one hundred feet in circumference. The bark of the large trees of the *Sequoia gigantea* is some eighteen inches thick, and is as fibrous in its texture as a bale of cotton. It is very similar in form and appearance to the Redwood of the Pacific slope, the wood being dark red and extremely light. These giants of the forest were first discovered by a hunter in 1852, and they stand first, as the grandest productions of the vegetable kingdom.

A NEW LIFEBOAT.

In spite of the fact that we have a service of three hundred lifeboats and about two hundred and ninety-three rocket-stations around the shores of the United Kingdom, about one thousand lives were lost by shipping casualties in the year 1880-81. The loss of life during the twenty-seven previous years verges on twenty thousand; the lives saved during the same period by the lifeboats of the National Lifeboat Institution number twenty-nine thousand. We are pleased to notice the recent launch in the river Thames of a lifeboat on a new principle. This boat is the invention of Mr Illius A. Timmis, of 17 Great George Street, Westminster, and Mr J. R. Hodgson, familiarly known on the north-east coast as the 'Stormy Petrel,' from his daring acts of bravery in cases of shipwreck and the number of lives he has saved. The boat, as described in a contemporary, consists of a hull formed of two curved tubes of large diameter, meeting at the ends, and thus inclosing an open space, which is fitted with a decking, composed of wood at the centre and of rope-netting at the ends. The decking is placed midway of the depth of the hull, and the water-line being below the deck-line, the boat is always the right way up, no matter how she is put into the water. The body of the boat is made either of wood or of steel plates, and divided into compartments, which will serve for the storage of provisions. The boat can be either swung from davits or stowed away in any position, and can be run out on rollers end-on into the sea. The trials in question were made with two boats, one being steel built and the other of wood, each being thirty-three feet in length, with eight feet

six inches and nine feet beam respectively. Both boats were tested in succession for stability, buoyancy, rowing, steering, and sailing powers, and were found by qualified judges present to possess in an eminent degree the requirements of a safe and reliable lifeboat.

ARTIFICIAL INCUBATORS.

Those who have turned their attention to the use of the artificial incubator are aware of the very narrow line that separates success on the one hand from failure on the other. It appears that the possibilities of artificial hatching have been recently attracting some attention in the United States. It has been found that as the size of the incubating machine is increased, the percentage of hatch is decreased. This is owing to the fact that an inclosed surface of four square feet can be so heated that there is no apparent variation of temperature in any part of it; but when there is an increase in the surface to be heated, there is a decrease of temperature in the outside edges. An authority on the subject, Professor J. Hasbruck, says that a trustworthy regulator is indispensable to every incubator, and that uniformity of temperature is the most important condition of success.

The result of Mr Hasbruck's own experience is that eggs hatch equally well at any point between one hundred and two and one hundred and five degrees, or if the heat varies from ninety-eight to one hundred and six degrees, without remaining long at the extremes. Few eggs will start below one hundred and two degrees, none at one hundred; and for the first half of the incubating period, few will endure one hundred and six degrees many hours. But all will go well, should the heat be kept within the safe lines, between one hundred and two and one hundred and five degrees. In Hearson's Incubator (115 Southwark Street, S.E.) this has been well provided for, the use of the regulator precluding the possibility of an injurious rise of temperature. Whenever the heat over the eggs exceeds one hundred and six degrees, the expansion of a capsule raises a wire, that lifts a damper, which allows the heated air to escape and lowers the temperature. The capsule again contracts on the fall of the temperature, when the damper descends, and again raises the temperature of the water to the required degree.

TRANSPORTING LIVE FISH.

From the United States we hear of a novel method adopted for the transport of live fish, which seems to have been entirely successful. We learn that one of the palace cars belonging to the Fish Commission recently started for California with its strange freight of eighteen thousand young fish. The car in which the human passengers and fish lived for the time, resembled a modern sleeping-car, with compartments at each end, but in place of seats on each side there were ledges about three feet high, in which were placed the tin fish-tanks. As the motion of the train might have dashed the water about, and so destroyed the fish, a novel device was adopted for avoiding this. About twenty fish were placed in gallon tin pails,

which were put in the tanks, and the latter were filled up with water. The motion of the car was found to be favourable for the circulation of air in the water, thus keeping it fresh. Every eight hours the water was renewed, and any dead fish were carefully removed by the attendants. The first halt was made at St Louis, where supplies of fish were left for applicants in Missouri and Arkansas, and from this point fish were sent all over the States at the expense of the consignee.

CHICAGO PIG-PACKING.

This enormous business, says a contemporary, carried out with the most elaborate mechanical contrivances, shows from returns lately published to have greatly decreased in scale of late years; for while in 1878-9 no less than seven million four hundred and eighty thousand hogs were killed and packed, in 1881-2 only five million seven hundred thousand were secured for the business. These figures are for winter packing only. The summer packing is somewhat less, the last returns showing only three million two hundred and twenty-five thousand as against five million three hundred and twenty-three thousand in 1880. As a natural result, prices have gone up considerably, and 1882 shows seventeen per cent. above 1881, and forty-four per cent. over 1880—two hundred and sixteen per cent. above 1878. Present prices are thirty per cent. above the average of the summer prices of the past seven years. Comparison is made between the value of a barrel of pork and that of a certain quantity of wheat. Thus, in 1879, a barrel of pork was of equal value to nine and a half bushels of wheat; in 1880, fourteen bushels of wheat were required to buy a barrel of pork; in 1881, fourteen and a half bushels of wheat; in 1882, sixteen and a half bushels of wheat; while at the present moment seventeen and a half bushels of wheat are the equivalent of one barrel of pork. Those travellers who go to the States for pleasure should never miss seeing the pig-killing establishments in Chicago and Cincinnati. The mechanical ingenuity and exactness of all the appliances for putting the poor pig out of his earthly existence, and the rapidity with which he is prepared for the use of a hungry world, is a wonderful sight to behold.

CANADIAN DAIRYING.

Cheese and butter factories are rapidly on the increase in Quebec. The Minister of Agriculture in the Dominion has issued a Report, in which it is stated that there are now in the province of Quebec two hundred and eighty cheese factories, forty-seven butter factories, and twenty-eight cheese and butter factories combined, which shows an increase of no less than one hundred and fifty-five establishments during the year. This is no doubt correct, for the vast increase of horned stock, partly from importation, but more especially from native breeding, must have an outlet for the enormous amount of milk produced, for which the sparse population of the province offers but a slight demand in its natural state. Canada is bound, in a few years, to be so large an exporter of butter and cheese that consumers in England will welcome the material

increase to the home supplies, as the price now paid for butter and cheese is fully double what it was thirty years since. In 1850-1-2, butter was ninepence per pound, cheese sixpence, meat eightpence. Competition with the States, and particularly with Holland, must have but one result, and that is a great reduction in the price for these necessaries. As to the effect it will have on the English producer, possibly it may actually do good, from the simple fact that it will be found more profitable to the English grazier to wean his calves well on new milk, than to make butter and cheese. The stakes at issue are large, and the future of our own country, agriculturally, depends much on what success the Canadian and States dairymen meet with in their cheese and butter making. As to the price of meat in Canada, it is stated that during Easter, in Quebec a fat calf could not be purchased for less than fifty dollars, and eight dollars had to be paid for a fat lamb.

IMPROVED RAILWAY SIGNALLING BY NIGHT.

In a discussion on Daltonism, or colour blindness, which appeared in the *Daily News* some little time back, it was stated that a new system of night railway signalling would shortly be introduced, by which accidents resulting from the inability of the engine-driver to distinguish a red from a white light—a visual defect more common than is generally supposed—would be rendered an impossibility. Mr Cleminson, the railway engineer, and our correspondent, Mr A. Tuer, of Leadenhall Street, the joint inventors of the new system, propose using at night the ordinary day semaphore signal, with the difference that the arms are to be boxed in and illuminated, their position as by day, and not the colour, signifying whether the line is blocked or clear.

THE VIOLET BANK.

'It was the first time Lucy had seen sweet violets.'

ERE the spring with full completeness
Filled the waiting world with sweetness,
ERE the trees had burst in beauty,
Ready for their summer duty,
Walked a fair-haired Child along
Where the river sang its song.

And her eyes were clear with joyance;
Not a shadow of annoyance
Dwelt upon her face, unshaded
By the memory of the past;
Nor regret for pleasures faded,
Or for joys that would not last.
As one dreameth a sweet dream,
So she walked beside the stream.

Suddenly a perfume stole
With delight into her soul,
And above her, on a height
(Oh, what exquisite delight!),
She beheld, with joy unspoken,
Something never seen before
(Just a sign, and seal and token
That the spring had come once more);

Yet in wandering she had never
Seen such flowers beside the river.

There they grew in sweet profusion,
While with eager, glad confusion,
Down she bent to pluck the treasure
All her own—with miser's pleasure,
Kissing every fragrant blossom
Ere she laid it in her bosom;

Then, with guilty face, looked round,
Lest some little friend or lover
Wandering by, should thus discover
What she, lucky child! had found.

And as years passed o'er the maiden
(Years with change and sorrow laden),
Still she came, with tender pleasure,

To the bank beside the river,
Gathering without stint or measure
Every spring those flowers, that never
Failed with odorous breath to greet her,
But with March came forth to meet her.

Years had fled: the Woman, older,
Oft had felt the world was colder,
Since those sunny days gone by;
Yet her heart beat faithfully
To the home she long had left,
To the place by change bereft,
And she said: 'The buds are bursting;
All the world for spring is thirsting;
I shall go and see again
That dear violet bank, whose sweetness
Ne'er is hidden by Time's fleetness,
Though my heart may throb with pain.'

And she went; but found no trace
Of that well-remembered place.
All was changed; the bank was gone;
And the river-path no more
Wound about it as of yore;
And of violets there were none!

Ah! in this short life, how often
Memories rise to soothe and soften;
Oft beside the well-known stream,
Does she gather, in a dream,
Violets as fresh as ever
From the bank above the river.

J. H.

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2d. To insure return in case of ineligibility, postage-stamps should accompany every manuscript.

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